

LOCUS PNSM 1421 bp unknown linear RNA-1421  
 DEFINITION mRNA for glutamine synthetase.  
 ACCESSION X63622  
 VERSION X63622.1 GI:404326  
 KEYWORDS gln gene; glutamate-ammonia ligase; glutamine synthetase.  
 SOURCE Scots pine.  
 ORGANISM Pinus sylvestris  
 Eukaryota; Viridae; Plantae; Streptophyta; Embryophyta; Tracheophyta;  
 Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.  
 REFERENCE 1 (bases 1 to 348)  
 AUTHORS Canovas,F.M.  
 TITLE Direct Submission  
 JOURNAL Submitted (17-DEC-1992) F.M. Canovas, Universidad de Malaga, Lab de  
 Bioquimica y Biologia Molecular, Fac de Ciencias, 29071 Malaga,  
 SPAIN  
 REFERENCE 2 (bases 1 to 1423)  
 AUTHORS Canton,F.F., Garcia-Gutierrez,A., Gallardo,F., de Vicente,A. and  
 Canovas,F.M.  
 TITLE Molecular characterization of a cDNA clone encoding glutamine  
 synthetase from a gymnosperm, *Pinus sylvestris*  
 JOURNAL Plant Mol. Biol. (2000), 41:117-128 (1993),  
 93363918  
 FEATURES Location/Qualifiers  
 source 1..1423  
     organism="Pinus sylvestris"  
     db\_xref="taxon:3349"  
     clone="pGS114"  
     34..110"  
     EC\_number="6.3.1.2"  
     ccidn\_start=1  
     product="glutamate--ammonia ligase"  
     protein\_id="CAA49476.1"  
     db\_xref="GI:404327"  
     db\_xref="SWISS-PROT:PUT-83"  
     translition="MSSVLTDLNLDLSVTKEVIAHYIWIIGSGMDMRSKARSLSCP  
 VSSVKELEPPWNWYDGSSTVGQAQGHDESEVILYPOAIFRDPFRRGKHILVICDAYSPNGTA  
 IPSMKRAAAGAKTFNEKAANSDEETWYGLEQEYTLIQKQKVWPKLIGWFIGGYPGPQGHYYC  
 GVGA-KAN-BRD-TYDAHYKACLYSGINISGINSEVMPGQWEFPWGPSVGISAADELWCA  
 AFI-KUR-THKA-GVW-LVFLXKPTEDWNGAGCTHNTSKSMRKEGGFEVIKKATEKIKL  
 RMIKEHISAGECNYRRRLTGRHETADMNTFSWGVANRGASVEVGRDTEKEKGKYFEDRK  
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 BASE COUNT 390 a 365 c 376 g 392 t  
 ORIGIN  
 1 ttcccttctt ctgggtttgt ttggagagtg gcccatttcga ggttattaaac agacccatc  
 61 aaccttgacc tgaggcgcgtt gacagagaag gtcatttcgag agttatataatg gatgggaggaa  
 121 tcaggaatgg atatggcgag taaaaggccaga ttcttgtcag gacctgtgg tagngttaaa  
 181 gagcttccca aatggaaacta tgacggctcc aycactggac aggctcaagg acatgacacaa  
 241 gaagtcattc tataccacaa agtatcttc cgtgatccat ttccgcagagg aaagcacatt  
 301 ttggtaatct gtgtatgcctt ctcttcataat gggactgcta ttccctccaa caagagggt  
 361 gcagcagcga aaatttttaa cggaaaaggcg gttatgtatg aagagacatg gtacgggttt  
 421 gaaataagaat atacaatgtt cggaaaaggac gtcggatggc ttcttggctg gccaatttgtt  
 481 ggstaccccg ttccctcagggg ccataattac ttgtggatgtt gagctgacaa agccctgggg  
 541 cgagacatcg tttatgtccaa ttataagggt ttgttttattt caggaatcaa tttccatgg  
 601 atcaatggag aagtccatgcg agggttgtgg gaattttcaag taggttcgtc agtgggttata  
 661 tcaggcgcgcg atgagctgtt gtgtgttgtt ttttttatgg agaggattac aaaaaaggcg  
 721 ggttgttgtt ttt  
 781 cacacaaatc aacggccaa tt  
 841 gcaatagaaa aactgtgggtt ggggtatgtt ctttttttttttttttttttttttttttttttt  
 901 gagatgttt  
 961 ccaatccatccatccatccatccatccatccatccatccatccatccatccatccatccatccatccat

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